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10/559,630

09/11/2006

David Whittingham

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KLARQUIST SPARKMAN, LLP  
121 SW SALMON STREET  
SUITE 1600  
PORTLAND, OR 97204

EXAMINER

BONZELL, PHILIP J

ART UNIT

PAPER NUMBER

3644

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/559,630 | <b>Applicant(s)</b><br>WHITTINGHAM ET AL. |  |
|                              | <b>Examiner</b><br>PHILIP J. BONZELL | <b>Art Unit</b><br>3644                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/2/2005, 4/11/2006</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 2-6, 9, 10, and 12-15 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of the claims starts with "An aircraft conditioning system"; it is unclear if this is a different system than that claims in claims 1 and 11. The claims should be changed to --The air conditioning system-- so as to have proper dependence, this will also help to avoid possible restrictions and fees for increased independent claims.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 7, 8, 11, 14, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hall (US PgPub #2003/0039576).

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- a. For Claims 1, 7, 11, and 16, figure 1 of Hall '576 discloses an aircraft conditioning system for use on an aircraft that has a re-circulating air means in the form of a fan (3), and a means for irradiating the re-circulated air in the form of an ultraviolet illumination section (5).
- b. For Claim 3, figure 1 of Hall '576 discloses a plenum chamber (4) that feeds the re-circulated air to the filter (6).
- c. For Claim 8, figure 1 of Hall '576 discloses the system (2-8) as a kit that can be connected to any mixing or enclosed space (1).
- d. For Claim 14, figure 2 of Hall '576 discloses the ultraviolet illumination section (5) with a plurality of UVC emitters (10).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US PgPub #2003/0039576) as applied to claim 1 above, and further in view of Werjefelt (US Patent #4461155). Figure 1 of Hall '576 discloses a re-circulation fan (3) that has an inlet connected to a mechanical filter (6) and an output that is connected to a mixing unit (1) that is adapted to mix re-circulated air supplied to the mixer unit by the fan.

While Hall '576 teaches using UV light which includes the wavelength of 253.7 nm, it is

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silent about using that specific value; however, the last line in the abstract of Werjefelt '155 teaches specifically using a frequency of 253.7 nm to clean air. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 with the frequency of Werjefelt '155 in order to kill the germs from the air.

4. Claims 4-6, 10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US PgPub #2003/0039576) as applied to claim 1 above, and further in view of Walkinshaw (US Patent #6491254).

a. For Claim 4, Hall '576 is silent about the plenum chamber receiving re-circulated air from multiple outlets from the cabin, however, figure 3 of Walkinshaw '254 teaches receiving re-circulated air from multiple outlets from the cabin (3). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 with the system of Walkinshaw '254 in order to re-circulate air from more than one location on the aircraft so as to provide safer air for the entire aircraft.

b. For Claims 5 and 15, Hall '576 is silent about the positioning of the air conditioning system; however, figure 1 of Walkinshaw '254 teaches the system below the cabin (3) which would be substantially in line with the roots of the aircraft wings. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 with the placement of the

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system as taught in Walkinshaw '254 in order to have the system out of the way thus providing more room in the cabin.

c. For Claims 6 and 10, figure 2 of Hall '576 discloses a plurality of UV emitters (10) located in the UV radiation (5). Figure 1 of Hall '576 discloses that the UV radiation unit (5) is located in the plenum chamber (4) to which the mechanical filter (6) is exposed for re-circulating air from the plenum chamber (4).

d. For Claims 12 and 13, Hall '576 is silent about mixing the irradiated air with fresh air and then redistributing it to the cabin, however, figure 3 of Walkinshaw '254 teaches mixing the re-circulated air from the cabin (36) with fresh air from the engine (26) in the mixing chamber (20a) and then distributing it back to the cabin (3) through an air supply (37). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 with the system of Walkinshaw '254 in order to add new fresh air into the system so as to increase the amount of oxygen that is entered into the system.

5. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US PgPub #2003/0039576) as applied to claim 2 above, and further in view of Jones (US Patent #5925320). While Hall '576 discloses a multiblade fan, it is silent about the fan having a first and second fan each with an inlet, however, figures 1 and 2 of Jones '320 teaches two fans (28) each with there own inlet fluidly connected to a respective

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mechanical filter (20) and an outlet. Therefore it would have been obvious to someone of ordinary skill in the art to modify Hall '576 with a plurality of fans as taught in Jones '320 in order to provide a redundant system.

6. Claims 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US PgPub #2003/0039576) in view of Walkinshaw (US Patent #6491254).

e. For Claim 17, figure 1 of Hall '576 discloses a method for conditioning air in an aircraft comprising irradiating re-circulated air with UV light from a UV light unit (5), Hall '576 is silent about mixing the irradiated air with fresh air and then redistributing it to the cabin, however, figure 3 of Walkinshaw '254 teaches mixing the re-circulated air from the cabin (36) with fresh air from the engine (26) in the mixing chamber (20a) and then distributing it back to the cabin (3) through an air supply (37). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 with the system of Walkinshaw '254 in order to add new fresh air into the system so as to increase the amount of oxygen that is entered into the system.

f. For Claim 19, figure 1 of Hall '576 discloses filtering (6) the air prior to the re-circulated air being mixed in the mixing unit (1).

g. For Claim 20, while Hall '576 is silent about irradiating all the air, the Examiner takes Official Notice that it is well know to irradiate substantially all of the air so as to kill as many of the germs in the air as possible. Therefore it

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would have been obvious to someone of ordinary skill in the art at the time of the invention irradiate substantially all of the re-circulated air so as to maintain a safe and clear air conditioning system.

7. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (US PgPub #2003/0039576) in view of Walkinshaw (US Patent #6491254) as applied to claim 17 above, and further in view of Werjefelt (US Patent #4461155). While Hall '576 teaches using UV light which includes the wavelength of 253.7 nm, both Hall '576 and Walkinshaw '254 are silent about using that specific value, however, the last line in the abstract of Werjefelt '155 teaches specifically using a frequency of 253.7 nm to clean air. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Hall '576 and Walkinshaw '254 with the frequency of Werjefelt '155 in order to kill the germs from the air.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Krosney '782, Poember '845, Yates '863, Avnery '137, Kulp '460, and Morrow '242 all teach air purification systems that use UV light, and Curry '982 and Helm '981 teach aircraft air conditioning systems that mix air.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP J. BONZELL whose telephone number is (571)270-3663. The examiner can normally be reached on M-Th 8-5;.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. J. B./  
Examiner, Art Unit 3644

/Michael R Mansen/  
Supervisory Patent Examiner, Art Unit 3644

pjb